

HISTORIC AMERICAN ENGINEERING RECORD

INDEX TO PHOTOGRAPHS

HAER
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51-PHILA
7095-

NAVAL BASE PHILADELPHIA - PHILADELPHIA NAVAL SHIPYARD,
STRUCTURAL ASSEMBLY SHOP

(Naval Base Philadelphia - Philadelphia Naval Shipyard,
Building No. 541)

League Island

Philadelphia

Philadelphia County

Pennsylvania

HAER No. PA-387-S

All photographs by Jet Lowe, HAER staff photographer, Summer 1995.

- PA-387-S-1 VIEW NORTHEAST OF MOULD LOFT AND PLATING CUTTING
SHOP IN STRUCTURAL ASSEMBLY SHOP (BUILDING No. 541).
- PA-387-S-2 VIEW OF "IRON HORSE" SEMI-ISOMETRIC.
- PA-387-S-3 VIEW OF "IRON HORSE" - A MACHINE CAPABLE OF
SIMULATING THE SHAPE OF A HULL AT ANY GIVEN AREA IN A
1\10 SCALE. SPECIFIC POINTS ARE IDENTIFIED FROM 1\10
SCALE DRAWINGS OF THE SHIPS' BODY PLAN. PLASTIC
SPLINES ARE CONFIGURED TO THE BODY PLAN AT SEVERAL
STATIONS. POINTS ARE POSITIONED TO SPECIFIC LOCATIONS
FROM THE BODY PLAN OVER THE SPLINES WITH SUFFICIENT
GAP TO INSERT A PIECE OF ELECTRICALLY CONDUCTIVE
PAPER. THE PAPER IS INSERTED BETWEEN THE POINTS AND
THE SPLINES AND FORMS A SECTION OF HULL PLATING AT
1\10 SCALE. AN ELECTRIC CURRENT IS APPLIED TO EACH
POINT AND BURNS A MARK ON THE PAPER. THE PAPER IS
THEN REMOVED, FLATTENED AND NOW REPRESENTS A
SECTION OF HULL PLATING. USING PRECISE PHOTOGRAPHY,
THE SECTION IS PROJECTED (AS A GLASS SLIDE) ON TO A
PIECE OF HULL PLATING WHICH MAY BE UP TO 30 FEET LONG
AND 8 FEET WIDE. MARKS ARE TRACED ON THE PLATE,
WHICH SERVE AS A GUIDE TO THE CUTTERS WHO TRIM THE
PLATE TO FINAL DIMENSIONS.
- PA-387-S-4 VIEW NORTHWEST OF MOULD LOFT WITH FULL SIZE PATTERN
STORAGE AT RIGHT.

NAVAL BASE PHILADELPHIA - PHILADELPHIA NAVAL SHIPYARD,
STRUCTURAL ASSEMBLY SHOP
HAER No. PA-387-S
INDEX TO PHOTOGRAPHS
(Page 2)

PA-387-S-5

VIEW OF AMPOWER "LUMOTRACE" PROJECTOR USED FOR
ENLARGING SLIDES 100 TIMES AND PROJECTING THEM ON TO
A PLATE SEVERAL STORIES BELOW ON THE CUTTING FLOOR.

*See HAER No. PA-387 for photocopies of historic images.

HISTORIC AMERICAN ENGINEERING RECORD

INDEX TO PHOTOGRAPHS

HAER
PA
91-PHILA
7099-

ADDENDUM TO
NAVAL BASE PHILADELPHIA-PHILADELPHIA
NAVAL SHIPYARD, STRUCTURAL ASSEMBLY SHOP
(Naval Base Philadelphia-Philadelphia Naval Shipyard,
Building No. 541)
League Island
Philadelphia
Philadelphia County
Pennsylvania

HAER No. PA-387-S

(Page 3)

Photographs PA-387-S-1 to PA-387-S-5 were previously transmitted to the Library of Congress.

Photographer: Jonathan Wallen

July 1995

- PA-387-S-6 CONTEXTUAL VIEW OF SOUTH ELEVATION OF BUILDING NO. 541, LOOKING WEST. BUILDING NO. 620 AT LEFT.
- PA-387-S-7 CONTEXTUAL VIEW OF BUILDING NO. 541, LOOKING NORTHEAST. STRUCTURE NO. 1043 IN FOREGROUND.
- PA-387-S-8 WEST AND SOUTH ELEVATIONS OF BUILDING NO. 541, LOOKING NORTHEAST.
- PA-387-S-9 NORTH AND WEST ELEVATIONS OF BUILDING NO. 541, LOOKING SOUTHEAST.
- PA-387-S-10 CONTEXTUAL VIEW OF BUILDING NO. 541, LOOKING SOUTHEAST. STRUCTURE NO. 1045 IN FOREGROUND.
- PA-387-S-11 CONTEXTUAL VIEW OF BUILDING NO. 541, LOOKING SOUTHWEST. STRUCTURE NO. 1051 IN LEFT FOREGROUND AND STRUCTURE NO. 1045 IN RIGHT FOREGROUND.
- PA-387-S-12 SOUTH AND EAST ELEVATIONS OF BUILDING NO. 541, LOOKING NORTHWEST.
- PA-387-S-13 EAST BAY OF BUILDING NO. 541, LOOKING NORTHEAST.
- PA-387-S-14 EAST BAY OF BUILDING NO. 541, LOOKING NORTHWEST.
- PA-387-S-15 EAST BAY OF BUILDING NO. 541, LOOKING SOUTHWEST.
- PA-387-S-16 BAY B OF BUILDING NO. 541, LOOKING NORTHWEST.

INDEX TO PHOTOGRAPHS
NAVAL BASE PHILADELPHIA-PHILADELPHIA NAVAL SHIPYARD,
STRUCTURAL ASSEMBLY SHOP
(Naval Base Philadelphia-Philadelphia Naval Shipyard, Building No. 541)
HAER No. PA-387-S (Page 3)

7

PA-387-S-17 BAY B OF BUILDING NO. 541, LOOKING SOUTHEAST.

PA-387-S-18 BAY C OF BUILDING NO. 541, LOOKING NORTH.

PA-387-S-19 BAY C OF BUILDING NO. 541, LOOKING SOUTH.

PA-387-S-20 BAY D OF BUILDING NO. 541, LOOKING NORTH.

PA-387-S-21 BAY E OF BUILDING NO. 541, LOOKING NORTH.